

GENERAL SUBJECT:		NUMBER:
Materials Test Procedures		MD 254-05
SPECIFIC SUBJECT: Virginia Test Method-8 Conducting California Bearing Ratio Test		DATE: May 18, 2005
DIRECTED TO: District Administrators	SIGNATURE: Andrew Mergenmeier, PE Signature on original copy of memorandum	

The California Bearing Ratio (CBR) Test, in accordance with VTM-8, has been used by the Department since the 1950's as the primary test for measuring the strengths of soils to determine the design of our pavements. A formal study, "Comparative Study of VTM and AASHTO Test Methods for CBR" conducted by Shabbir Hossain, P.E., PhD (link provided below); compared VTM-8 to AASHTO T 193. Pursuant to the findings of this study (that AASHTO's CBR test method produces equivalent results to that by VTM-8) and in order to better align VDOT with the construction and geotechnical industries, the following revisions to the Virginia Test Methods Manual are hereby in effect:

Virginia Test Methods Manual Opening Page

Under "Virginia Test Method – 8", delete "**Deleted**(See AASHTO T 193)" and replace with "Conducting California Bearing Ratio Test."

This will require repagination.

Virginia Test Methods Manual

Page 14

Delete page 14 and replace with the following:

5/11/2005

Virginia Test Method For Conducting California Bearing Ratio Test

Designation: VTM-8

AASHTO T 193 shall be followed, except as modified below:

1. Scope

- 1.4 This test method provides for the determination of the CBR of a material at optimum water content and maximum dry density determined according to VTM-1.
- 1.5 Delete

2. Referenced Documents

Test Procedure	VTM	AASHTO
Gradation	VTM-25	AASHTO T 87, T 27
Atterberg Limits	VTM-7	AASHTO T 89, T 90
Moisture Density Relation	VTM-1	AASHTO T 99, T 180
Specific Gravity of Course	No Modifications	AASHTO T 85
Aggregate		
Moisture Content of Soils	No Modifications	AASHTO T 265

5. Sample

- 5.1 The sample shall be handled and specimens for compaction shall be prepared in accordance with the procedures given in VTM-1, except as follows:
 - 5.1.2 From a sample having a mass of 25 lb or more, select a representative portion having a mass of approximately 7 lb for a moisture-density test and retain the remainder of the sample for CBR testing.
 - 5.1.3 Delete

6 <u>Moisture-Density Relation</u>

- 6.1 Using the 7 lb portion prepared as described in Section 5.1, determine the optimum water content and maximum dry density in accordance with VTM-1.
- 6.2 Delete
 - 6.2.1 Delete
- 7 <u>Procedure</u>
 - 7.1.2 Delete
 - 7.1.3 Mix the 15 lb portion prepared in Section 5.1 with sufficient

water to obtain a moisture content within +/- 2.0 percentage points of the optimum water content determined in Section 6.1.

- 7.1.4 Prepare one CBR specimen. Compact the portion of soil-water into the mold, using three equal layers and appropriate rammer to give a total compacted depth of about 5 inches, compacting each layer with an adequate number of blows in order to give a compacted density within +/- 2.5 percent of the maximum theoretical dry density determined in Section 6.1.
- 7.1.7 Delete
- 7.2 Delete
 - 7.2.1 Delete
- 10. Calculations
 - 10.3 Delete
 - 10.4 Delete
- 11. Report
 - 11.1.1 Delete

This will require repagination.

For a copy of Dr. Hossain's CBR study, please use the following link:

http://www.virginiadot.org/business/resources/bu-mat-CBR-Report.pdf

cy:

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